

548IHSSF4070



DocumentID NONCD0002874

Site Name MOHAWK-KARASTAN

DocumentType Site Assessment Rpt (SAR)

RptSegment 1

DocDate 7/8/1993

DocRcvd 8/19/2008

Box SF4070

AccessLevel PUBLIC

Division WASTE MANAGEMENT

Section SUPERFUND

Program IHS (IHS)

DocCat FACILITY

RECEIVED
WASHINGTON OFFICE

AUG 12 1993

D. E. M.

UNDERGROUND STORAGE TANK CLOSURE ASSESSMENT

**BIGELOW-KARASTAN MILL
GREENVILLE, NORTH CAROLINA
TWO 10,000 GALLON FUEL OIL TANKS**

Prepared for: Fieldcrest-Cannon
Engineering Dept.
P.O. Box 107
Kannapolis, NC 28082

July 8, 1993

**PYRAMID ENVIRONMENTAL, INC.
2706 PINEDALE ROAD
GREENSBORO, NC 27408
(919) 282-9030**

COPY

TABLE OF CONTENTS

| | |
|--|----|
| 1.0 INTRODUCTION | 1 |
| 2.0 GEOLOGY AND HYDROGEOLOGY | 1 |
| 3.0 SOIL BORINGS AND SAMPLING..... | 2 |
| 4.0 STOCKPILE SAMPLING..... | 2 |
| 5.0 LABORATORY ANALYSIS..... | 2 |
| 6.0 CONCLUSIONS / RECOMMENDATIONS..... | 3 |
| 7.0 QUALIFICATIONS | 3 |
| FIGURES: | 4 |
| 1. Site Location Map..... | 4 |
| 2. Site Detail Map..... | 5 |
| 3. Site Topographic map | 6 |
| 4. Soil Boring Locations..... | 7 |
| 5. Stockpile Sample Locations..... | 8 |
| 6. TPH Isoconcentration Map..... | 9 |
| APPENDICES:..... | 10 |
| I. Laboratory Reports & Chain of Custody Forms | |
| II. Site Sensitivity Evaluation (SSE) Forms | |

**Underground Storage Tank Closure Assessment
Bigelow-Karastan Mill
Greenville, North Carolina
Two 10,000 Gallon Fuel Oil Tanks**

1.0 INTRODUCTION

On May 20, 1993 Clean-East, Inc. excavated and removed one 10,000 gallon UST (UST A), and closed another in place (UST B) at Fieldcrest-Cannon's Bigelow-Karastan Mill in Greenville, North Carolina (Figure 1). The USTs had been used to store #5 fuel oil. On June 9, 1993, Pyramid Environmental Inc. conducted an underground storage tank closure assessment for the above referenced tanks. The two 10,000 gallon Underground Storage Tanks (USTs) were located in a single pit adjacent to the main building (Figure 2) and near two 20,000 gallon USTs (USTs C & D) which had been removed a few days earlier, and are the subject of a separate report. The tank closest to the building (UST B) was closed in place due to its proximity to a structural wall of the plant.

This closure assessment included observation and sampling of the in-situ and excavated soils to assess the possible presence of petroleum hydrocarbon contamination in the soils. Soil samples were collected from borings in the vicinity of USTs A & B and from the stockpiles of soil removed in the excavation. The soil samples were sent to a state certified laboratory to be analyzed for Total Petroleum Hydrocarbons (TPH). Appendix I includes the analytical laboratory report and chain-of-custody forms for this assessment.

2.0 GEOLOGY AND HYDROGEOLOGY

The site is located in Pitt County, North Carolina in the Coastal Plain geologic province. It overlies a basement of Plio-Pleistocene sedimentary rock of the Yorktown Formation, characterized by mixtures of fossiliferous fine sand, silt, and/or clay¹.

Groundwater generally flows in the direction of topographic gradient, which in this location is gentle and to the southeast (Figure 3). Measurements of water levels in groundwater monitoring wells confirmed a potentiometric gradient to the southeast.

3.0 SOIL BORINGS AND SAMPLING

Pyramid Environmental staff arrived at the project site on June 9, 1993. The excavation area had been backfilled with sand and gravel, and there was no visible staining of the soil in or around the site. Four boring locations were selected around UST B which was closed in place, and two from within the excavation area where UST A had been removed (Figure 4). One of the locations (S7) was coincident with the location of one of the groundwater monitoring wells we were installing (MW2). Boring locations were chosen in accordance with North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR) guidelines.

Using a hollow-stem Auger, borings were drilled at each of the locations, then the rig's auger was removed and soil samples were taken using a hand auger. The hand auger was cleaned and decontaminated with a solution of water and Alconox (a commercial-grade detergent) before each sample was taken.

A portion of each sample was placed in a clean plastic bag for testing with an Organic Vapor Meter (OVA), and the OVA readings were recorded in field notes. The remainder of the soil sample was placed in a glass jar with a tight lid, labeled, and placed in an ice chest maintained at a temperature of approximately 4° Celsius. Appendix I includes copies of the chain-of-custody and of the results of the laboratory analysis for these samples.

4.0 STOCKPILE SAMPLING

There are two stockpiles adjacent to each other on the property which contain soil excavated both from the site of USTs A & B, and from the site USTs C & D (Figure 5). Using a decontaminated hand auger, six soil samples were collected from varying locations and depths within each stockpile (Figure 4). Each set of six samples was composited in a clean, decontaminated bucket by hand, wearing clean, disposable plastic gloves. The composited samples were placed in glass jars with tight lids, labeled, and placed in an ice chest maintained at a temperature of approximately 4° Celsius. Appendix I includes copies of the chain-of-custody and of the results of the laboratory analysis for these samples.

5.0 LABORATORY ANALYSIS

Site Sensitivity Evaluation (SSE), as required by the NCDEHNR Guidelines, categorizes this site as a category "E" site with a low Site Characteristics Score (<30). For such a site the Final Cleanup Level for heavy fuels, oil, and/or grease (Method 9071) is 3000 ppm. Appendix II contains SSE forms for the site.

Soil samples, including both those from the stockpiles and those from the borings, were analyzed for Total Petroleum Hydrocarbons (TPH) using EPA method 9071 (Heavy Fuels, Oil, & Grease).

Boring samples from the former location of UST A (S4 & S5), and three of the four samples from around UST B which was closed in place (S2, S3, & S7) showed TPH levels much below the 3000 ppm acceptable limit (Table 1). Sample S1 from the up-gradient end of UST B was the only sample which showed a TPH concentration high enough to be of concern, measuring 29,000 ppm. Figure 6 shows isoconcentration contours for this data. The samples from the two stockpiles showed TPH levels slightly higher than most of the boring samples, but still within the acceptable range.

TABLE 1: Results of TPH Analysis (Method 9071) of Soil Samples.

| | UST A | | | | UST B | | Stockpiles | |
|--------------------------------|--------|------|------|------|-------|------|------------|------|
| Sample ID | S1 | S2 | S3 | S7 | S4 | S5 | SPA | SPB |
| OVM Readings | 109 | * | 129 | * | 11 | 0 | * | * |
| TPH (Heavy Fuel, Oil & Grease) | 29,000 | 10 | 58 | 10 | 29 | 10 | 880 | 88 |
| Clean-up Level | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |

All values in parts per million (ppm).

OVA = Organic Vapor Meter.

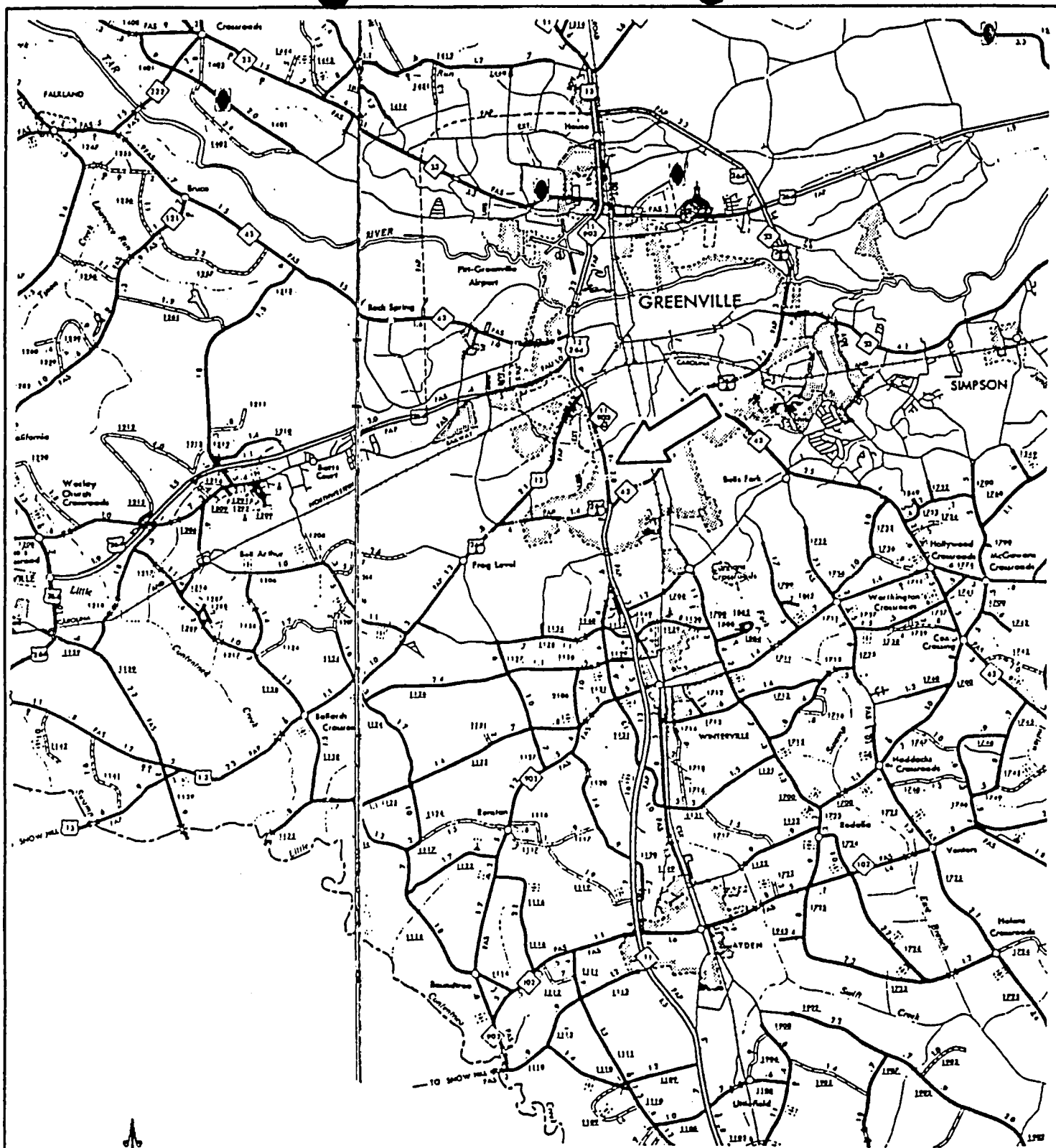
* - OVA readings unreliable.

6.0 CONCLUSIONS / RECOMMENDATIONS

The results of this UST closure assessment indicate that there may be significant hydrocarbon contamination of the soil in the vicinity of soil boring S1. Since this boring is up-gradient from the USTs and all the other soil borings, and since samples from the other borings did not show similar TPH levels, it is likely that this contamination is very localized, and may even be a result of field or laboratory error. We recommend 1-2 additional borings near the location of S1 to better define the extent of this contamination. We recommend no other action at this time.

7.0 QUALIFICATIONS

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science. No other warranty, express or implied, is made as to professional opinions included in this report. Opinions and recommendations presented herein apply to site conditions existing at the time of our investigation.



SCALE: 1" = 12,500'

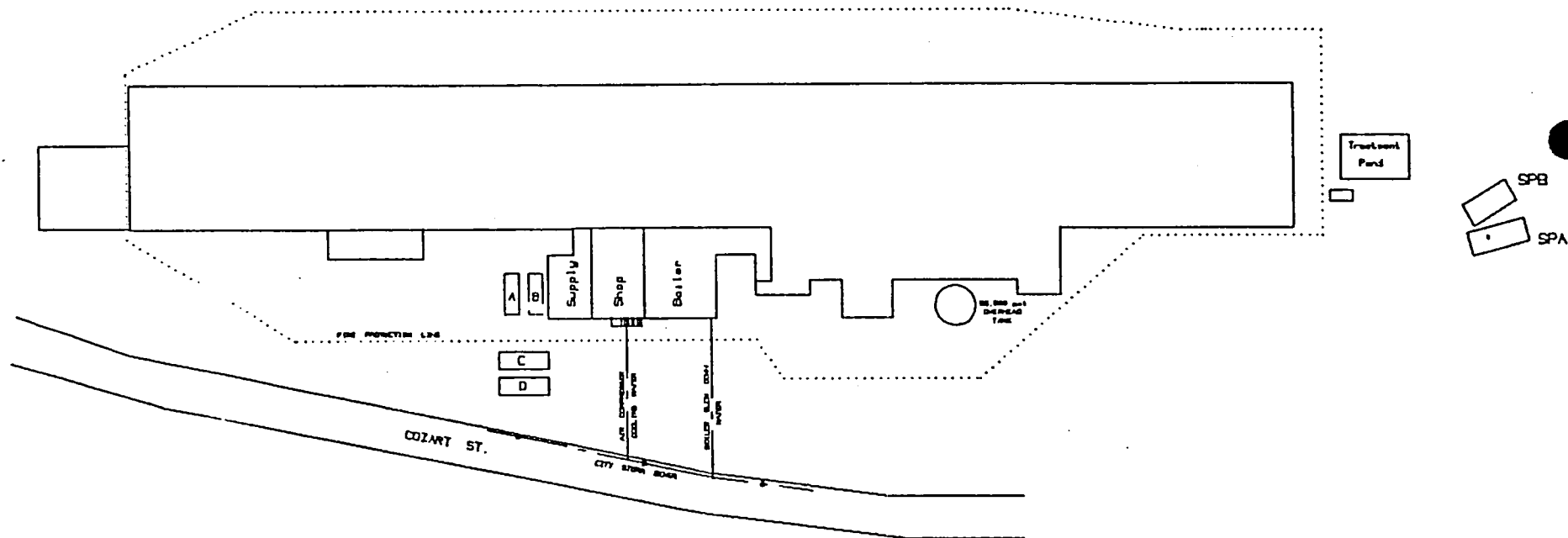
PYRAMID ENVIRONMENTAL

Fieldcrest Mill
Greenville, NC

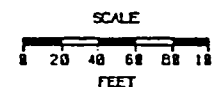
Site Location Map

July, 1993

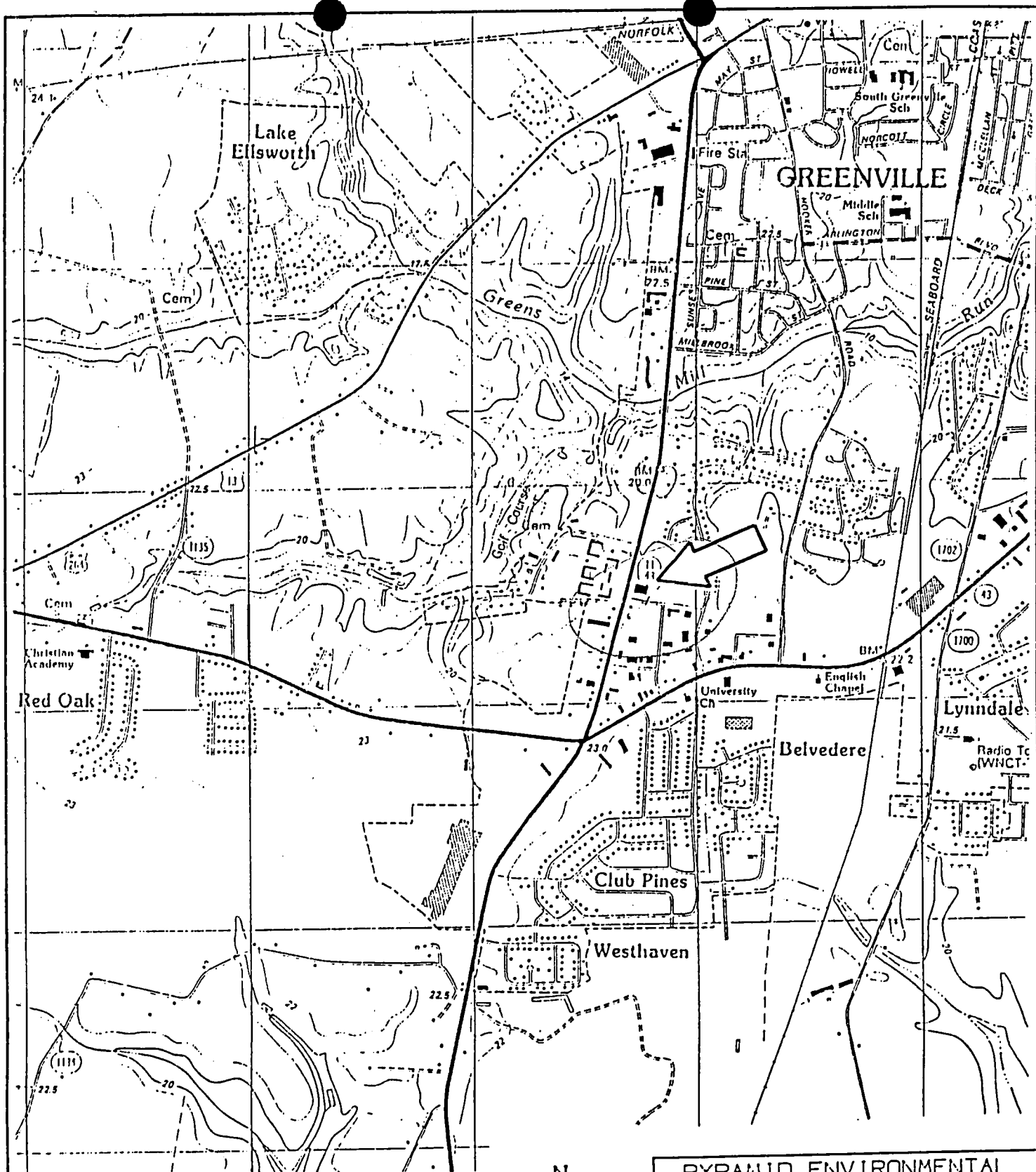
Figure 1



| KEY | |
|----------------------|-------------------|
| A - 10,000 gal UST | (REMOVED) |
| B - 10,000 gal UST | (CLOSED IN PLACE) |
| C - 20,000 gal UST | (REMOVED) |
| D - 20,000 gal UST | (REMOVED) |
| SPA - Soil Stockpile | |
| SPB - Soil Stockpile | |



| | |
|-----------------------|----------|
| Pyramid Environmental | |
| Fieldcrest Mill | |
| Greenville, NC | |
| Site Map | |
| June 1993 | Figure 2 |



SCALE: 1" = 2000'

USGS Topographic Map
Greenville SW
SW/4 Winterville Quad.



PYRAMID ENVIRONMENTAL

Fieldcrest Mill
Greenville, NC

Site Topographic Map

July, 1993

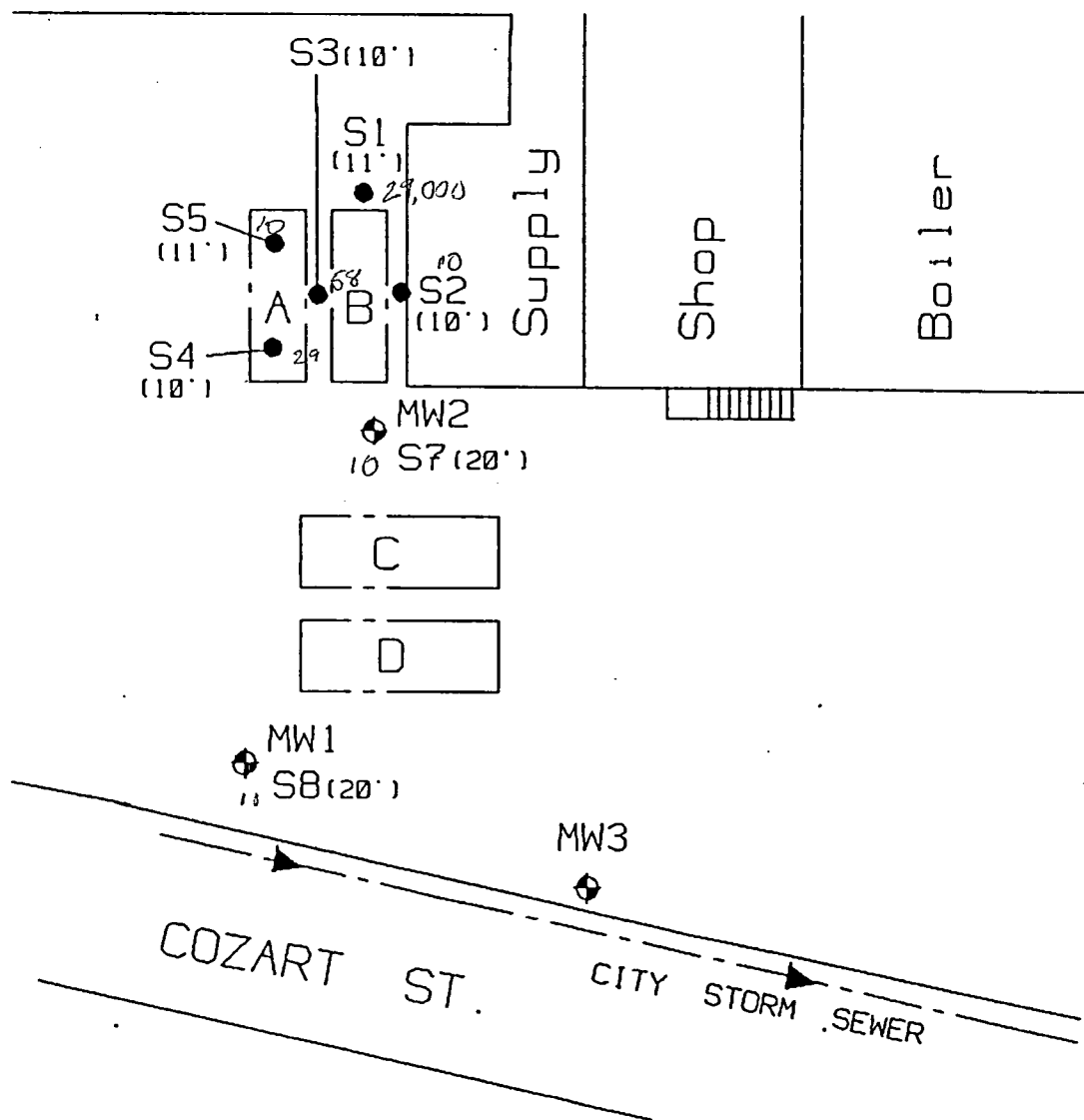
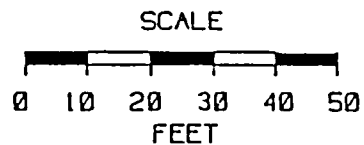
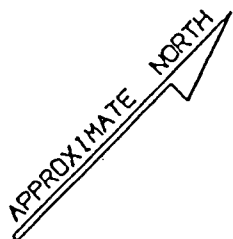
Figure 3

KEY

- A - 10,000 gal UST (REMOVED)
- B - 10,000 gal UST (CLOSED IN PLACE)
- C - 20,000 gal UST (REMOVED)
- D - 20,000 gal UST (REMOVED)

◆ - Well Boring

● - Soil Boring
(10') (Sample Depth)



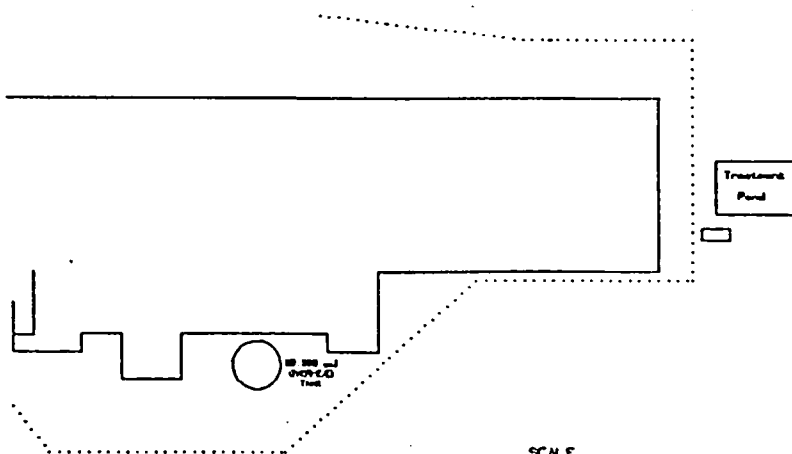
| | |
|-----------------------------------|----------|
| Pyramid Environmental | |
| Fieldcrest Mill Greenville, NC | |
| Boring Locations | |
| June 1993 | Figure 4 |

KEY

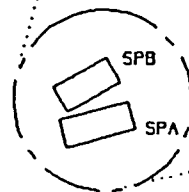
SPA } Soil Stockpiles from
SPB } Tank Excavations

• 3' — Locations of soil samples
composited to make samples
SPA and SPB.

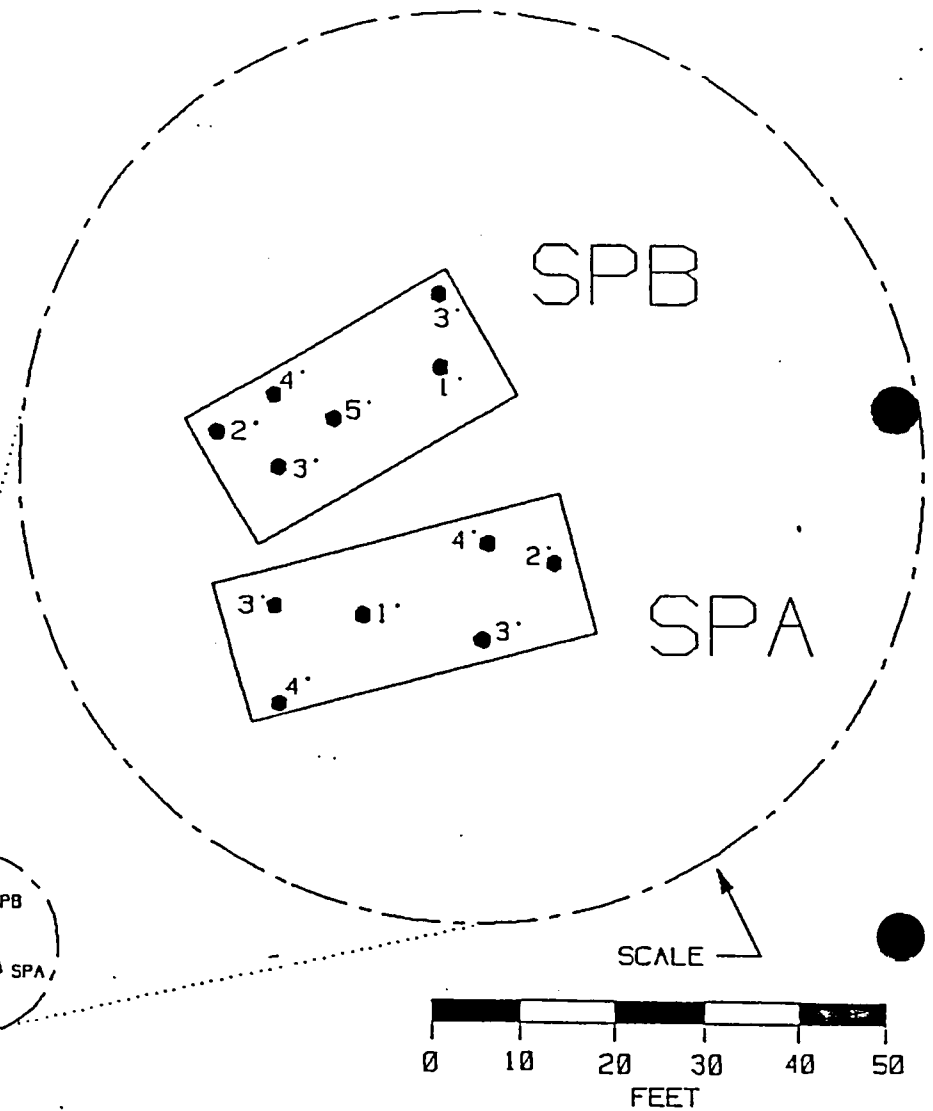
— Depth below top
of stockpile.



SCALE
0 20 40 60 80 100
FEET

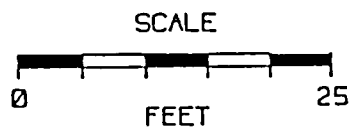
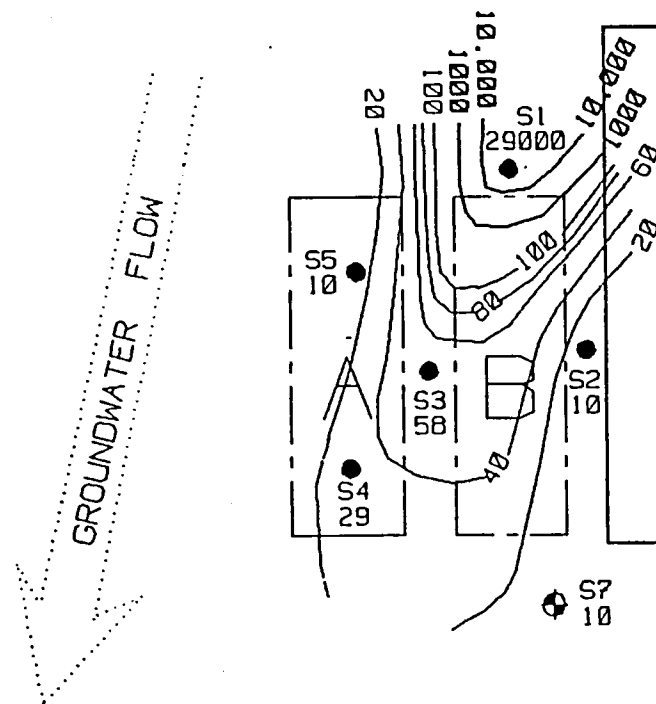


APPROXIMATE NORTH

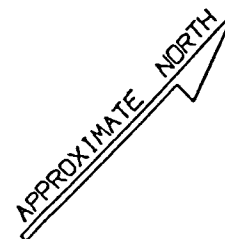


SCALE
0 10 20 30 40 50
FEET

| | |
|-----------------------------------|----------|
| Pyramid Environmental | |
| Fieldcrest Mill Greenville, NC | |
| Stockpile Sampling | |
| June 1993 | Figure 5 |



Contours represent
TPH isoconcentrations
in parts per million (ppm).



| | |
|-----------------------|----------|
| Pyramid Environmental | |
| Fieldcrest Mill | |
| Greenville, NC | |
| TPH Concentrations | |
| June 1993 | Figure 6 |

APPENDIX I

Laboratory Analyses and Chain of Custody Forms

VI. Analytical Results (Cont'd)

General Chemistry

Sample Designation

| <u>Parameter</u> | <u>Method</u> <u>Blank</u> | A83749-1 <u>S1</u> | A83749-2 <u>S2</u> |
|------------------|-------------------------------|-----------------------|-----------------------|
| Oil and Grease | -- | 29,000,000 | 10,000 U |
| Units | (ug/kg) | (ug/kg) | (ug/kg) |

Sample Designation

| <u>Parameter</u> | <u>Method</u> <u>Blank</u> | A83749-3 <u>S3</u> | A83749-4 <u>S4</u> |
|------------------|-------------------------------|-----------------------|-----------------------|
| Oil and Grease | -- | 58,000 | 29,000 |
| Units | (ug/kg) | (ug/kg) | (ug/kg) |

Sample Designation

| <u>Parameter</u> | <u>Method</u> <u>Blank</u> | A83749-5 <u>S5.2</u> | A83749-6 <u>S7</u> |
|------------------|-------------------------------|-------------------------|-----------------------|
| Oil and Grease | -- | 10,000 U | 10,000 U |
| Units | (ug/kg) | (ug/kg) | (ug/kg) |

Sample Designation

| <u>Parameter</u> | <u>Method</u> <u>Blank</u> | A83749-7 <u>S-8</u> | A83749-8 <u>SPA</u> | A83749-9 <u>SPB</u> |
|------------------|-------------------------------|------------------------|------------------------|------------------------|
| Oil and Grease | -- | 10,000 U | 880,000 | 88,000 |
| Units | (ug/kg) | (ug/kg) | (ug/kg) | (ug/kg) |

2705 Pinebluff Road
Greensboro, NC
(919) 252-9030

Chain of Custody Page 1 of 1
Record 83749

83749

Senior's Signature

G. W. Beyer

[illegible]

2071

22

125

Remarks

| Serial No | Date | Time | Comments / Remarks | Sign |
|-----------|------|------|--------------------|------|
|-----------|------|------|--------------------|------|

[illegible]

| | | | | | |
|------------------------------|---------------------------------|--------------------------------|---------------------------------|-----------------------------|---------------------------------|
| Received by: <i>E.H. Bur</i> | Date/Time: <i>6/11/93 14:20</i> | Received by: <i>Scott Long</i> | Date/Time: <i>6/11/93 17:30</i> | Received by: <i>Fly Bur</i> | Date/Time: <i>6/12/97 19:45</i> |
| Remarks: | | | | | |

APPENDIX II

Site Sensitivity Evaluation Forms

Site Sensitivity Evaluation (SSE)

Site Characteristics Evaluation (Step 1)

| Characteristic | Condition | Rating | |
|---|---|-----------------------|-------------------|
| Grain Size* | Gravel Sand Silt <u>Clay</u> | 150 100 50 0 | <u>2</u> |
| Are relict structures, sedimentary structures, and/or textures present in the zone of contamination and underlying "soils"? | Present and intersecting the water table. Present but <u>not</u> intersecting the water table. <u>None present.</u> | 10 5 0 | <u>2</u> |
| Distance from location of deepest contaminated soil** to water table. | <u>0 - 5 feet</u> (C, D & E sites only) 5 - 10 feet >10 - 40 feet > 40 feet | 20 20 10 0 | <u>2</u> <u>2</u> |
| Is the top of bedrock or transmissive indurated sediments located above the water table? | Yes <u>No</u> | 20 0 | <u>2</u> |
| Artificial conduits present within the zone of contamination. | Present and intersecting the water table. Present but <u>not</u> intersecting the water table. <u>Not present.</u> | 10 5 <u>0</u> | <u>2</u> |

Total Site Characteristics Score:

22

* Predominant grain size based on Unified Soil Classification System or U.S. Dept. of Agriculture's Soil Classification Method.

** (>10 ppm TPFH by Method 5030; >40 ppm TPFH by Method 3550; >250 ppm O&G by Method 9071)

Site Sensitivity Evaluation (SSE)

Initial Cleanup Level
(Step 2)

Final Cleanup Level
(Step 3)

EPA Method 5030 for Low Boiling Point Hydrocarbons such as Gasoline, Aviation Fuels, Gasohol

| Total Site Characteristics Score | Initial Cleanup Level TPFH (ppm) | | Category A & B (Multiply initial cleanup level by 1) | 1 x _____ = _____ ppm | Final Cleanup Level |
|----------------------------------|----------------------------------|----------------------------|---|-----------------------|---------------------|
| >150 | ≤10 | Select Site Category* → | Category C & D (Multiply initial cleanup level by 2) | 2 x _____ = _____ ppm | |
| 121-150 | 20 | | Category E (Multiply initial cleanup level by 3) | 3 x _____ = _____ ppm | |
| 91-120 | 40 | | | | |
| 61-90 | 60 | | | | |
| 31-60 | 80 | | | | |
| 0-30 | 100 | | | | |

EPA Method 3550 for High Boiling Point Hydrocarbons such as Kerosene, Diesel, Varsol, Mineral Spirits, Naphtha

| Total Site Characteristics Score | Initial Cleanup Level TPFH (ppm) | | Category A & B (Multiply initial cleanup level by 1) | 1 x _____ = _____ ppm | Final Cleanup Level |
|----------------------------------|----------------------------------|----------------------------|---|-----------------------|---------------------|
| >150 | ≤40 | Select Site Category* → | Category C & D (Multiply initial cleanup level by 2) | 2 x _____ = _____ ppm | |
| 121-150 | 80 | | Category E (Multiply initial cleanup level by 3) | 3 x _____ = _____ ppm | |
| 91-120 | 160 | | | | |
| 61-90 | 240 | | | | |
| 31-60 | 320 | | | | |
| 0-30 | 400 | | | | |

EPA Method 9071 for Heavy Fuels - Oil & Grease (O&G) such as Fuel Oil #4, #5, #6, Motor Oil, Hydraulic Fluid

| Total Site Characteristics Score | Initial Cleanup Level O&G (ppm) | | Category A & B (Multiply initial cleanup level by 1) | 1 x _____ = _____ ppm | Final Cleanup Level |
|----------------------------------|---------------------------------|----------------------------|---|-----------------------------------|---------------------|
| >150 | ≤250 | Select Site Category* → | Category C & D (Multiply initial cleanup level by 2) | 2 x _____ = _____ ppm | |
| 121-150 | 400 | | Category E (Multiply initial cleanup level by 3) | 3 x <u>1000</u> = <u>3000</u> ppm | |
| 91-120 | 550 | | | | |
| 61-90 | 700 | | | | |
| 31-60 | 850 | | | | |
| 0-30 | 1000 | | | | |

* See Site Category Descriptions, Table 3

3/10/93

TABLE 3

SSE SITE CATEGORY DESCRIPTIONS

CATEGORY A (*Site meets any one of the criteria*)

1. Water supply well(s) contaminated and not served by accessible public water supply.
2. Vapors present in confined areas at explosive or health concern levels.
3. Treated surface water supply in violation of the safe drinking water standards.

CATEGORY B (*Site meets any one of the criteria*)

1. Water supply well(s) contaminated, but served by accessible public water supply.
2. Water supply well(s) within 1500 feet of site, but not contaminated and not served by accessible public water supply.
3. Vapors present in confined areas but not at explosive or health concern levels.

CATEGORY C (*Site meets both of the criteria*)

1. No known water supply well(s) contaminated.
2. Water supply well(s) greater than 1500 feet from site but not served by accessible public water supply.

CATEGORY D (*Site meets both of the criteria*)

1. No known water supply well(s) contaminated.
2. Water supply well(s) within 1500 feet of site but served by accessible public water supply.

CATEGORY E (*Site meets both of the criteria*)

1. No known water supply well(s) contaminated or within 1500 feet of site.
2. Area served by accessible public water supply.